

Interim Plan Proposed For Cleanup of PCBs

Ten-Mile Drain Site

St. Clair Shores, Michigan

November 2013

Informational meeting

EPA will hold an open house and public meeting **Thursday, Dec. 12** on the proposed interim cleanup plan for part of the Ten-Mile Drain site.

Open house: St. Clair Shores Public Library, 22500 Eleven-Mile Road, 4 to 6 p.m. EPA, state and local officials will answer questions and share information.

Public meeting: City Council chambers, 27600 Jefferson Circle Drive, 6:30 p.m. Public comments will be accepted.

Share your opinion

The EPA invites you to comment on its proposed interim cleanup plan for the Ten-Mile Drain site before the public comment period closes on Jan. 6. Your input helps the EPA determine the best course of action.

There are several ways to comment on the proposed plan:

- Orally or in writing at the public meeting **Dec. 12**
- Fill out and mail the enclosed comment form.
- Fill out the public comment form at: www.epa.gov/region5/cleanup/tenmiledrain.
- Send an email to Community Involvement Coordinator Patricia Krause at krause.patricia@epa.gov.

The U.S. Environmental Protection Agency is proposing an interim cleanup plan to remove PCB contamination from the trench of the Ten-Mile Drain (TMD) storm sewer system. The EPA plans to dig up and replace manhole vaults, along with the underlying stone bedding and backfill material, at the two locations where the highest PCB levels have been found.

EPA officials believe this will help prevent the seepage of PCB contamination into the TMD system and the canals while the Agency works on a final cleanup plan. EPA considered several alternatives before recommending this course of action.

The engineering design and cleanup work will not begin until EPA selects a cleanup plan. That comes after a public meeting and after EPA reviews public comments on the proposed plan (*see box, left*). This proposed plan is part of EPA's public participation responsibilities under the federal Superfund law.¹ The EPA may modify the proposed cleanup plan or select another option based on new information or public comments, so your opinion is important.

Background and cleanup history

The site is near the intersection of Bon Brae Street and Harper Avenue. It includes a portion of the Ten-Mile Drain storm sewer system, which consists of concrete sewer pipes and soil surrounding the pipes in a utility corridor. PCBs have contaminated the sediment in and around the drain and in the Lange and Revere Street canals connected to Lake St. Clair. Residents use the canals for recreational boating, swimming and fishing. *See Figure 1, cleanup history timeline on page 4.*

Results of Investigation and Monitoring

EPA investigators found high concentrations of PCBs inside the pipe trench at the bottom of four manhole vaults along Bon Brae Street, about 15 feet below ground. EPA believes these pockets of PCBs are capable of re-contaminating the sediment and water inside the Ten-Mile Drain. The pollution concentrations are outside of the Ten-Mile Drain concrete pipe. PCB oil has soaked into the gravel and sand backfill of the pipe trench at the four locations.

Two of the manhole vaults are near the intersection of Bon Brae Street and Harper Avenue. The other two are on Bon Brae Street, at the intersection of Bon Brae and E Street, and between E Street and B Street. *See Figure 2, on page 5.*

¹Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, known as the Superfund law) requires publication of a notice and a proposed plan for the site cleanup. The proposed plan must also be made available to the public for comment. This proposed plan fact sheet is a summary of more detailed information contained in the remedial investigation, feasibility study and other documents in the administrative record for the Ten-Mile Drain site.

Risks to people and the environment

The PCB oil appears to be seeping from the PCB-contaminated bedding and backfill material into the system pipe, and ultimately into the canals. Recent sediment sampling data shows previously cleaned-up canal sediment has already been re-contaminated, and EPA officials want to prevent further environmental damage.

Failure to clean up the PCBs would mean more widespread contamination of the canal sediment and higher final site cleanup costs.

In most cases, EPA conducts human health and ecological risk assessments before recommending a cleanup alternative. These assessments help determine if there is a threat to humans, wildlife and the environment. Since this proposed plan is for an interim cleanup and it is early in EPA's investigation process, formal human health and ecological risk assessments will be part of future evaluations.

Cleanup options considered

Each alternative – except Alternative 1 (no action) – requires institutional and access controls to limit property use, and water monitoring inside and outside the drain.

Alternative 1 – No action: EPA always includes a “no action” alternative as a basis for comparison with other options. The PCB-contaminated bedding and backfill material would remain inside the pipe trench and PCBs would continue to seep into the system pipe and into the Lange and Revere Street canals. **Cost – \$0.**

Alternative 2 – Grouting of backfill materials and installation of a liner in each of the four vaulted manholes: This option would decrease the movement of PCBs by applying grout on all sides and under the manhole vaults, and by installing a liner in each manhole to eliminate contact between the water within the system pipe and the soil below the manholes.

The backfill materials at each manhole would be solidified by grouting. The grout would be applied in the backfill on all sides and beneath the manhole vaults to sufficient depths above and below the contaminated backfill and bedding materials to significantly reduce PCB mobility. This technology is not reversible as it results in a solidified mass.

A shotcrete liner or cured-in-place liner would be installed in each manhole to eliminate contact between water within the TMD system and the contamination below the manhole vaults. The liners would not only reline the vaults, but also would extend 10 feet into each pipe that enters into each manhole. Prior to installing the liner, the manholes would be dewatered, and stormwater would be temporarily

About PCBs

PCBs, or polychlorinated biphenyls, are a group of fabricated chemicals originally used in industrial processes and products such as coolants and lubricants. PCB production was banned in the U.S. in 1977, but PCB mixtures remain in old electrical equipment and other items.

PCBs can pose potential health risks through eating contaminated food, soil or water; through direct contact; or through breathing PCB-contaminated air or particles.

The EPA considers PCBs to be possible cancer-causing chemicals.

rerouted. Each vault would be power-washed and cleaned prior to shotcrete application.

Estimated Capital Cost (Design, Geotechnical Investigation and Construction): \$1.8 million.

Estimated Annual Operation & Maintenance Cost (30 years): \$111,504

Total Present Value: \$3.7 million.

Estimated Construction Time: 3 weeks.

Alternative 4 – Excavation, cleanup and replacement of four manhole vaults: This option would reduce the volume of contamination and PCB movement by digging up and replacing the manholes at each of the four locations.

All four manhole vaults would be excavated and removed for proper disposal, along with the surrounding impacted backfill materials. Prior to excavation, the manholes would be dewatered and flow in the TMD system would be temporarily rerouted with pumps.

Four new manhole vaults would be installed, including new stone bedding and backfill materials. Prior to installing the new manholes, a flexible synthetic liner would be installed on the open excavation surface to separate the existing soil from the new clean bedding and backfill materials. The flexible synthetic liner would be bolted to the outside of each new manhole vault using batten strips. Excavated impacted soils would be treated through solidification by mixing a reagent (cement kiln dust) to convert the sludge to a granular solid and improve the handling characteristics of the waste, prior to disposal.

Estimated Capital Cost (Design, Geotechnical Investigation and Construction): \$3.6 million.

Estimated Annual Operation & Maintenance Cost (30 years): \$93,150

Total Present Value: \$5.2 million

Estimated Construction Time: 8 weeks.

Alternative 7 – Excavation, cleanup and replacement of two vaulted manholes (This is the recommended alternative): This is similar to Alternative 4, except that only the two most highly contaminated manhole vaults would be replaced. They are at the intersection of Bon Brae Street and Harper Avenue and are identified as M7179 and J01. PCB contamination would remain at the base of the two other two manholes, M4335 and M7183. Cleanup of those two manholes would be part of the final cleanup plan.

Estimated Capital Cost (Design, Geotechnical Investigation and Construction): \$2.6 million.
Estimated Annual Operation & Maintenance Cost (30 years): \$76,866
Total Present Value: \$3.9 million
Estimated Construction Time: 6 weeks.

Evaluation of Cleanup Options

EPA evaluated four options for the cleanup to keep the PCB contamination under the manholes at the Ten-Mile Drain site from further contaminating the canals. The options are summarized here and shown in a comparison table on Page 6.

Each cleanup alternative, except Alternative 1 (no action), would reduce the infiltration of PCB oil, contaminated trench water, and impacted backfill and vault bedding materials into the TMD system pipe. Full details are available in the technical documents on file at the St. Clair Shores Public Library and on the Web. The options were evaluated using eight of the nine criteria set by federal law (*see right column*). The alternatives will be further evaluated against the ninth criterion – Community Acceptance – following the public comment period for this proposed plan.

The **long-term effectiveness and permanence** of the alternatives are evaluated in terms of how well an option will work over the long term, including how safely remaining contamination can be managed. Alternatives 4 and 7 are considered to have the greatest degree of long-term effectiveness and permanence. Alternative 4 would remove and replace all four vaulted manholes, while Alternative 7 would remove and replace the two most highly contaminated vaulted manholes. PCB-contaminated bedding and backfill material at those manhole locations would be removed and monitoring wells would be installed in the utility trench adjacent to the newly installed vaults to provide information on the build up of oils and data to support future cleanup action at the site. The degree of long-term effectiveness and permanence of Alternative 2 is not as great, since solidification is the primary component of the action and the source materials would not be removed.

Evaluation criteria for Superfund cleanup alternatives

- 1. Overall protectiveness of human health and the environment** determines whether an alternative protects living things. This standard can be met by reducing or removing pollution or by reducing exposure to it.
- 2. Compliance with applicable or relevant and appropriate requirements** ensures alternatives comply with federal and state laws.
- 3. Long-term effectiveness and permanence** evaluates how well an alternative will work over the long term, including how safely remaining contamination can be managed.
- 4. Reduction of toxicity, mobility or volume of contaminants through treatment** determines how well the alternative reduces the toxicity, movement and amount of pollution.
- 5. Short-term effectiveness** compares how quickly an alternative can help the situation and how much risk exists while the alternative is under construction.
- 6. Implementability** evaluates how feasible the alternative is and whether materials and services are available in the area.
- 7. Cost** includes not only buildings, equipment, materials and labor, but also the cost of maintaining the alternative for the life of the cleanup.
- 8. State agency acceptance** determines whether the state environmental agency (in this case the MDEQ) accepts an alternative. EPA evaluates this criterion after receiving public comments.
- 9. Community acceptance** considers the opinions of the community about the proposed cleanup plan. EPA evaluates this criterion after a public hearing and comment period.

Alternative 1 would not utilize treatment to **reduce the toxicity, mobility or volume of the contaminants**. The National Contingency Plan preference for treatment would be met with Alternative 2, which utilizes in-situ (in place) treatment through solidification of impacted soil. The NCP is the federal government's plan for responding to both oil spills and hazardous substance releases. The NCP preference for treatment would also be met with Alternatives 4 and 7, which utilize ex-situ treatment by mixing a reagent (cement kiln dust) with the impacted soil converting the sludge to a granular solid to improve the handling characteristics of the waste. Immobilization of the impacted soil through solidification reduces mobility of waste, but does not significantly reduce toxicity or volume of waste.

Short-term impacts of the alternatives increase as more contaminated soil around the manholes are excavated and as more clean soil must be brought to the site. Greater amounts of off-site soil disposal will result in greater amounts of community disturbance related to transporting contaminated soil off-site and greater potential for worker injury. Alternative 1 has no action associated with it so would have no associated impacts. Alternative 2 has the least amount of truck traffic, shortest construction period, and does not require excavation or traffic disturbance. Dust generated during construction activities would be from clean materials, and particulates could be readily monitored and controlled through dust suppression methods.

Alternative 4 has the greatest short-term impact because of the larger number of trucks required to transport the material to and from the site and through populated areas compared to Alternative 7. Alternative 4 would require an estimated 10 excavation trucks, 10 clean fill trucks, and 1 asphalt truck compared to 4 excavation trucks, 4 clean fill trucks, and 1 asphalt truck estimated for Alternative 7. The exposures could be addressed through proper decontamination and properly functioning tarp systems on trucks, dust monitoring and suppression during construction, and appropriate erosion control measures.

All the action alternatives can be implemented with readily available materials and methods. The main technical challenge for Alternatives 4 and 7 is deep excavation and the need for sheet piling and shoring. The main technical challenge for Alternative 2 is the selection of the proper grouting technique. These challenges could be overcome through effective planning and design.

The cost criterion evaluates the capital costs (design, geotechnical investigation and construction costs) and operation and maintenance of each alternative. Present-worth costs have been calculated to help compare costs

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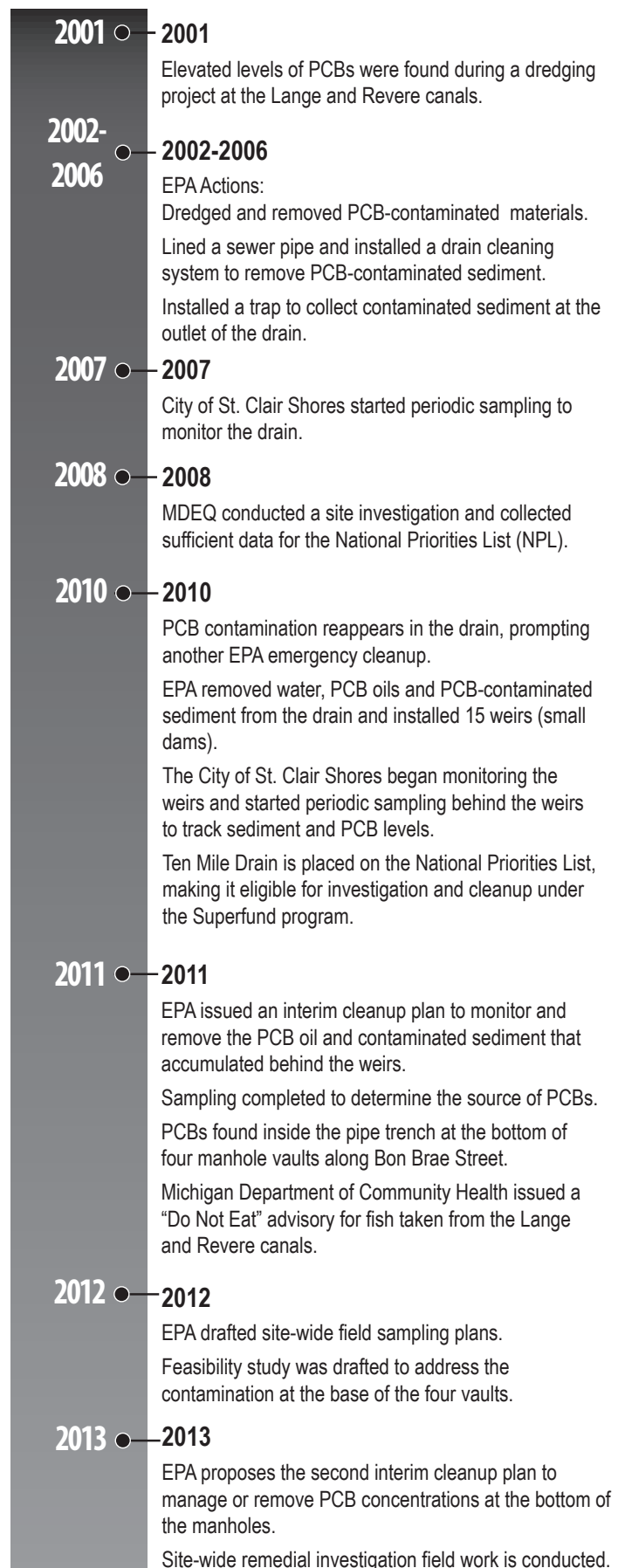


Figure 1 – Cleanup history timeline



Figure 2 – Manhole vault locations

and among alternatives with different implementation times. Alternative 1 would cost nothing. Alternative 2 is the least expensive action alternative (\$3.7 million present worth cost) with a capital cost of \$1.8 million. Alternative 7 is the next most costly alternative (\$3.9 million present worth cost) with a capital cost of \$2.6 million. Alternative 4 is the most costly alternative (\$5.2 million present worth cost) with a capital cost of \$3.6 million. A final cost estimate for the selected action will be developed and refined during the remedial design process.

The Michigan Department of Environmental Quality supports Alternative 7 as the recommended interim remedial action. Community acceptance will be evaluated after the public comment period ends and will be discussed in the interim Record of Decision.

Rationale for the chosen alternative

The EPA recommends Alternative 7 – the excavation, cleanup and replacement of the two most highly contaminated manhole vaults. This is based on several justifications:

- Achieves the best balance among the nine criteria.
- Significantly reduces the exposure of people and wildlife to contamination.
- Complies with all federal and state regulations for this limited-scope action.
- Cost-effective way to manage the most highly contaminated material.

EPA officials believe Alternative 7 represents the best balance of the evaluation criteria and that this alternative will protect human health and the environment while reducing the volume of PCBs discharging into the canals. Alternative 7 will remove the highly impacted bedding and backfill materials at manholes M7179 and J01, leaving the PCB contamination at the base of manholes M4335 and M7183 to be addressed as part of the final site-wide cleanup solution for the Ten-Mile Drain site.

EPA believes the removal and replacement of manholes M7179 and J01 will ultimately remove the major source materials and that, over time, monitoring results will

(continued page 7)

Comparison of Cleanup Alternatives

Evaluation Criteria	Alternative 1	Alternative 2	Alternative 4	Alternative 7*
Overall protection of human health and the environment	○	●	●	●
Compliance with ARARs	○	●	●	●
Long-term effectiveness and permanence	○	○	●	○
Reduction of toxicity, mobility, or volume through treatment**	○	●**	●**	●**
Effectiveness	○	●	●	●
Implementability	○	●	●	●
Capital Costs (\$ millions)	\$0	\$1.8 million	\$3.6 million	\$2.6 million
State acceptance	The state supports EPA's recommended Alternative 7.			
Community acceptance	Will be evaluated after the public comment period.			

● Fully meets criterion ○ Partially meets criterion ○ Does not meet criterion

* EPA's recommended alternative

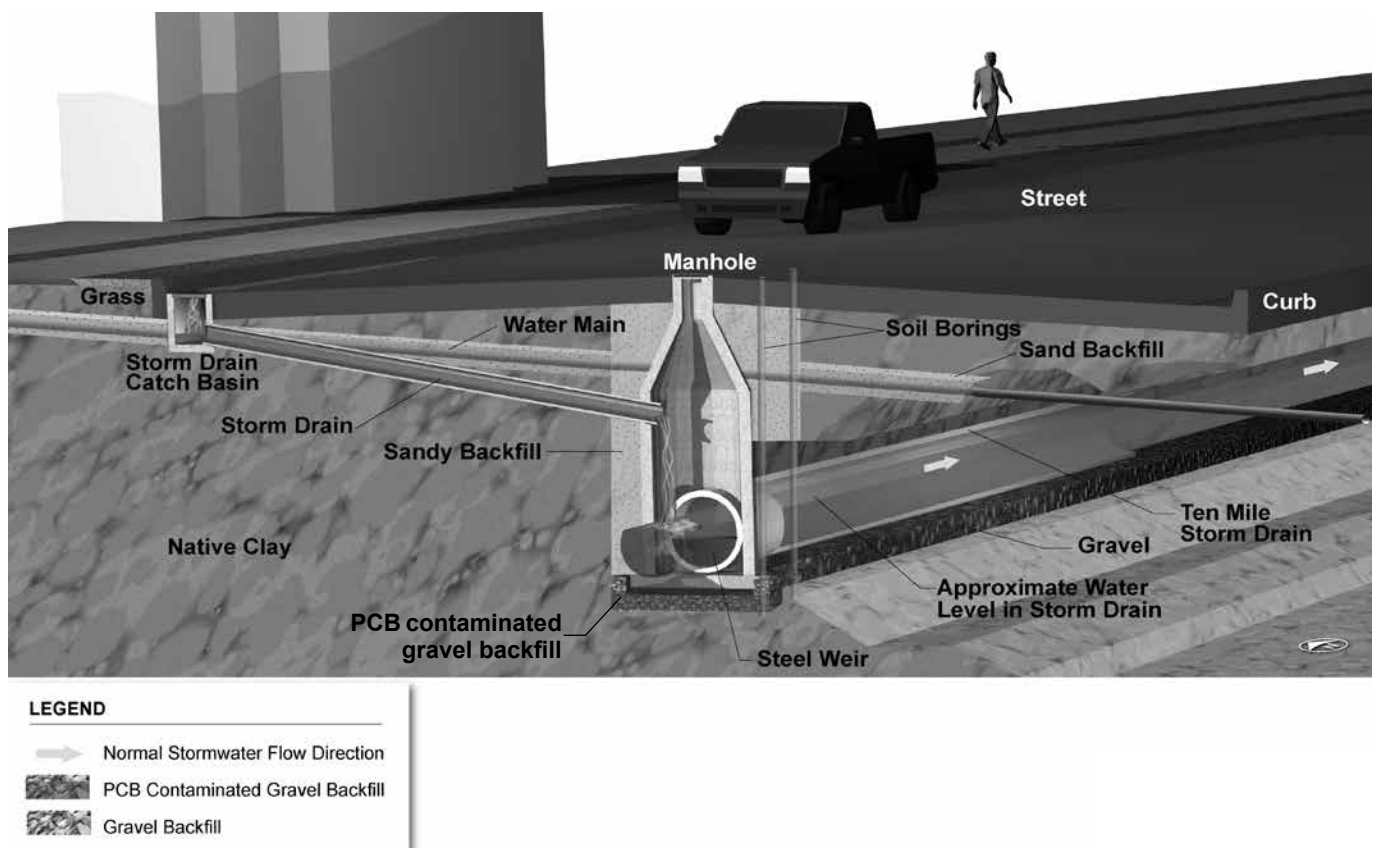
**Solidification of contaminated backfill material reduces PCB mobility, but will not significantly reduce toxicity or volume of wastes.

reveal a reduction in the presence of PCB oil within the TMD system. EPA also believes the information obtained during the construction and implementation of Alternative 7 will continue to solidify the conceptual site model for the Ten-Mile Drain site and will provide valuable information to inform EPA's future decisions about the final site-wide remedy.

Next steps

The EPA, in consultation with the Michigan Department of Environmental Quality, will select a final cleanup plan

only after reviewing public opinion during the comment period and public meeting. The EPA will compile answers to public comments in a document called a responsiveness summary. The final cleanup plan will be published in another document called a record of decision, or ROD. The ROD and responsiveness summary will be available for review online at www.epa.gov/region5/cleanup/tenmiledrain/ and in the official repository at the St. Clair Shores Public Library.



Graphic shows cross-section of one of the manhole vault locations in the underground Ten-Mile Drain storm sewer system. Graphic shows the potential movement of PCBs re-entering the drain at the bottom of the manhole vault locations.

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Public Meeting
Thursday, Dec. 12
6:30 p.m.

City Council Chambers
27600 Jefferson Circle Drive
St. Clair Shores

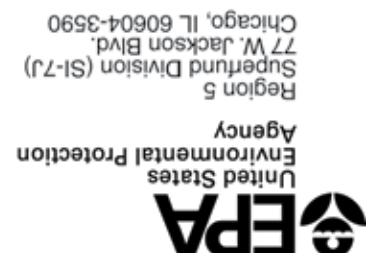
EPA will hold an open house and public meeting Thursday, Dec. 12 on the proposed interim cleanup plan for part of the Ten-Mile Drain site. The EPA invites you to comment on its proposed interim cleanup plan for the Ten-Mile Drain site before the public comment period closes on Jan. 6. Your input helps the EPA determine the best course of action.

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TEN-MILE DRAIN SITE: Interim Plan Proposed for Cleanup of PCBs

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Ten-Mile Drain Site

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Patricia Krause

EPA Community Involvement Coordinator

Superfund Division (SI-7J)

EPA Region 5

77 W. Jackson Blvd.

Chicago, Il 60604-3590

Use This Space to Write Your Comments

The EPA is interested in your comments on the proposed cleanup plan for the Ten-Mile Drain site. You may use the space below to write your comments. You may submit this at the Dec. 12 public meeting, or detach, fold, stamp and mail. Comments must be postmarked by Jan. 6. If you have any questions, please contact Patricia Krause at 312-886-9506, or toll free at 800-621-8431, weekdays 9:30 a.m. – 5:30 p.m. Comments may also be faxed to 312-697-2568 or via the Web at www.epa.gov/region5/cleanup/tenmiledrain and link to the public comment form.

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Name _____

Affiliation _____

Address _____

City _____ State _____ ZIP _____